# ROCKS and MINERALS

Official Journal of the Rocks and Minerals Association

"So it's home again, and home again, America for me!
My heart is turning home again, and there I long to be,
In the land of youth and freedom beyond the ocean bars,
Where the air is full of sunlight and the flag is full of stars."
—Henry Van Dyke.

**Vol. 21, No. 7** **Whole No. 180**

**JULY, 1946**

A Magazine for Mineralogists, Geologists and Collectors

**25c**

# MORE FINE MINERALS FROM AN OLD COLLECTION

**Clinoclasite**, Cornwall. Very good xls. on rock. 2½ x 1½ ..... $ 7.50
**Smithsonite**, Tsumeb. Good gray scalenohedral xls. with black phantoms on rock. 2½ x 1½ ..... 5.00
**Axinite**, Franklin. Small yellow xls. on ore. 3 x 2 ..... 2.00
**Rutile**, Overbrook, Philadelphia. Brilliant reticulated xls. on Quartz xls. 2 x 1¾ ..... 2.00
**Hematite**, Switzerland. Xld. "Eisenrose". 2¼ x 1½ ..... 12.50
**Brucite**, Wood's Mine, Pa. Xlline. mass. 4 x 2½ ..... 2.00
**Prehnite**, Bourg d'Oisans. Very fine xls. on rock. 3 x 2½ x 2 ..... 6.00
**Adularia**, Switzerland. Very large sharp xl. coated w. Chlorite 3½ x 2¾ 4.00
**Pectolite**, Paterson. Terminated xls. under microscope. 3 x 2 ..... 2.50
**Essonite**, Maine. Large brilliant xls. up to 1". 4 x 3 ..... 6.00
**Petzite**, Colorado. Minute xls. on rock. 2 x 1½ ..... 8.00
**Nephelite**, Monte Somma. Xld. with Sanidine on rock. 2½ x 2½ ..... 2.00
**Brochantite**, Arizona. Well xld. on Cuprite. 3 x 1½ ..... 4.50
**Minium**, Germany. Incrustation on rock. 2½ x 1½ ..... 5.00
**Sylvanite**, Cripple Creek. Xlline w. Fluorite on rock. 3½ x 2¼ ..... 12.00
**Manganite**, Michigan. Fine Xld. group 3½ x 2¼ ..... 6.00
**Tiemannite**, Clausthal. Massive w. some rock. 2¼ x 1½ ..... 6.00
**Cerussite**, Tsumeb. Brilliant xls. on Malachite. 3½ x 2¾ ..... 12.50
**Vivianite**, Cornwall. Good ¾" xl. in Pyrite, not decomposed ..... 4.00
**Cordierite**, Madagascar. Xlline. mass, good color. 4 x 2¾ x 1½ ..... 3.50
**Augite v. Fassaite**, Tyrol. Good xld. group. 3½ x 2½ ..... 3.00
**Chalcophyllite**, Cornwall. Brilliant ¼" xl. in rock. 3 x 2 ..... 8.00
**Beryllonite**, Maine. ⅝" xl. fragment ..... 1.50
**Braunite**, Brazil. Very good xls. in mass. 2 x 1¾ ..... 5.00
**Ilvaite**, Elba. Loose xl. 1¾ x 1, not brilliant ..... 1.50
**Arsenic**, Andreasberg. Solid botryoidal mass. 2½ x 2 ..... 2.50
**Azurite**, Tsumeb. Fine ½" xls. on matrix. 2 x 1½ ..... 10.00
**Spinel**, Madagascar. Fine 1½" black xl. w. smaller xls. 2 x 1½ ..... 5.00
**Aragonite v. Nicholsonite**, Tsumeb. Xl. group. 2 x 2¼ ..... 3.00
**Clinochlore**, Tilly Foster. Very fine xls. on rock. 4 x 2½ x 2 ..... 12.50
**Chalcopyrite**, French Creek. Xld., fine "old timer". 4 x 3 ..... 7.50
**Purpurite**, Maine. Solid mass. 3½ x 2 ..... 3.50
**Rutile, Harford Co.**, Md. Xld. on Chlorite, etc. Described in May-June issue of **The American Mineralogist**. 3½ x 2½ ..... 3.00
**Kammererite**, California. Deep violet micro. xls. on Chromite. 3½ x 3 .. 2.50
**Leightonite**, Chile. Xld. on rock. 3 x 3 x 2 ..... 6.00
**Spinel**, Amity, N. Y. Loose 2" crude xl. ..... 2.50
**Descloizite**, S.W. Africa. Group of large xls. 2 x 2 ..... 2.00
**Silver**, Michigan. Superb bright xls., no Copper or rock. 2¼ x 1½ ..... 15.00
**Andradite**, Hungary. Very good group of sharp, bright xls. 3 x 2½ .... 7.50
**Caledonite**, Leadhills, Scotland. Xld. w. Cerussite. 2½ x 2½ x 2 ..... 7.50
**Pyrrhotite**, Kisbanya. Mass of tabular xls. 2½ x 2½ x 1½ ..... 5.00
**Tetrahedrite**, Bingham. Well xld. w. Quartz, etc. 5 x 4 x 3. (3½ lbs.) ..... 7.50
**Embolite**, N.S. Wales. Very fine coralloidal mass on rock. 3½ x 2½ ... 12.50

Transportation extra. Terms cash with orders. Money refunded on unsatisfactory specimens returned within one week of receipt.

## HUGH A. FORD

**OFFICE AND SHOWROOM: 110 WALL STREET** **NEW YORK 5, N. Y.**

Telephone: BOwling Green 9-7191

**No lists furnished, but enquiries for specific minerals welcomed.**

**ROCKS and MINERALS**
PUBLISHED MONTHLY

Edited and Published by
PETER ZODAC

July
1946

## CONTENTS FOR JULY, 1946



Entered as second-class matter September 13, 1926, at the Post Office at Peekskill, N. Y., under the Act of March 3, 1879


Specially written articles (as contributions) are desired.
Subscription price $2.00 a year; Current numbers, 25c a copy. No responsibility is assumed for subscriptions paid to agents and it is best to remit direct to the Publisher.
Issued on the 1st day of each month.


ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

**The official Journal of the Rocks and Minerals Association**

# CHIPS FROM THE QUARRY

## AN IMPORTANT ANNOUNCEMENT

No matter where you live, you have noticed that prices on many items are increasing. We, too, have noticed this and have hoped and prayed it would not affect *Rocks and Minerals*. We have also noticed that many magazines have been forced to increase their rates, months ago, but we have held ours down even though on July 1, 1941, our printers increased their rates 20%.

On May 1, of this year, our printers have increased their rates another 20% and now we are forced to increase ours.

Beginning Sept. 1, 1946, the new rates for *Rocks and Minerals* will be:

Subscriptions—$3.00 a year
Sample copies— 35c each

(The September, 1946, issue of *Rocks and Minerals*, will be our 20th Anniversary Number).

## TIMMINS, CANADA, TAKES CARE OF ITS MINERS

One of the finest industrial health and recreation programs to be found on the North American continent is in operation in the Northern Ontario gold mining town of Timmins, according to the (June 15th) issue of *Saturday Evening Post*.

The transformation of Timmins from the usual dirty, brawling mining camp extends far beyond the sleek and attractive surface of this smart and modern town, Bertram B. Fowler writes in "A Mining Town Doesn't Have to be a Slum."

The care of the miner begins during the four-hour period between shifts, when a powerful ventilating system pumps air into the mile-deep levels to carry off gases and dust, Mr. Fowler reports.

"When the miners come up out of the workings, their clothes are damp from exertion and the warmth of those lower levels," he says. "On the surface, they file into a huge drying room where they strip and hang their damp clothing on a drying rack. They go through a system of showers that handles them wholesale.

"From the showers the miner goes into another drying room. Leaving this room, he dons a pair of goggles and steps on a conveyor belt that carries him under a battery of ultra-violet rays to the locker room, where he has left his street clothes. The time he spends under the battery of ultra-violet ray lamps is a carefully measured minute. In that minute he has absorbed the equivalent of three hours of sunshine. Complete cleanliness and dryness, plus the ultra-violet-ray treatment have sharply reduced the number of colds formerly contracted in bad weather."

To combat the miners' dread disease, silicosis, the air of the drying room is sprayed with aluminum powder as the men don their working clothes, The Post article says. The powder prevents the silicate particles from dissolving in the lungs, thus enabling the miners to lift them to the throat naturally to be spat out.

The community center provided by the mine operators at Timmins has a gymnasium that also is used as a dance hall and a banquet hall, Mr. Fowler writes. There is an auditorium for little theater activities and lectures, a hockey rink of big league proportions and a small ice rink equipped with mirrors for fancy skating, a curling rink and bowling alleys. During the summer there are facilities for softball, football, baseball, tennis and swimming.

The value of the community center as a morale booster was expressed by a miner who told The Post writer, "Up here,, I'm not just a miner; I'm a member of a millionaire's country club."

**ROCKS and MINERALS**

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

July 1946

Vol. 21, No. 7 Whole No. 180

# THE DUGWAY GEODE PLACERS, UTAH

BY RONALD L. IVES

Vice-President, R. & M. A.

## ABSTRACT

Extensive deposits of geodes, located along ancient shorelines of Lake Bonneville, at the junction of the Dugway and Thomas Ranges, Utah, are here described, and their possible origin discussed.

## LOCATION AND ACCESSIBILITY

The Dugway geode placers are located in a large dry wash extending downhill to the northwest from Dugway Pass, at the intersection of the Dugway and Thomas Ranges, Toole County, Utah. General location of the geode areas is shown in Fig. 1, an outline map of the Utah desert area.

The geode placers are best reached from Salt Lake City via Faust, Lookout Pass, and Simpson Springs. Roads are good desert roads, but adequate fuel, water, food and tools should be taken along; military reservations should be avoided unless permission to enter is obtained in advance; and "dud" bombs should be left strictly alone.

## GEOLOGIC ENVIRONMENT

The Dugway Range is a rather typical "inselberg", or isolated desert range, produced by block faulting in tertiary time; more recently modified by additional faulting, wave action during the high stages of Lake Bonneville (1); and later sheetflood erosion during the current dry climate phase.

Composed originally of paleozoic sandstones and limestones, the Dugway Range has been irregularly metamorphosed; there have been at least two extensive mineralizations; and at least two cycles of volcanic activity, probably Tertiary and very late Pleistocene. The few fossil corals, sponges, and trilobites found in the limestones have suffered so many vicissitudes that accurate classification has not yet been possible.

A general view of the Dugway Mountains, taken from the air, comprises Fig. 2.

## GEODE AREAS

Locations of the principal geode areas are shown in Fig. 3, a sketch map showing the area between Dugway Pass and the Black Rock Monument. Although four principal geode areas are shown, a few geodes can be found anywhere in the map area except on the salt flats.

Area A is the most productive at present. Geodes occur in a matrix of red silicious material, having the general appearance of lava. Study of the relations of this material to other rocks in the area suggests that it may actually be melted red paleozoic sandstone, as all gradations from this matrix, through red quartzite, to sandstone, can be found within a few square miles.

Geodes occur in the matrix with a maximum frequency of about one per cubic yard, and those now on the surface have been freed from the matrix by weathering and wave action. The relation of the geode placers to the ancient

---

Adequately described in Gilbert G. K. *Lake Bonneville*. U. S. Geol. Sur. Monograph No. 1,1890. This work is one of the classics of geologic literature, and is worth thorough study.

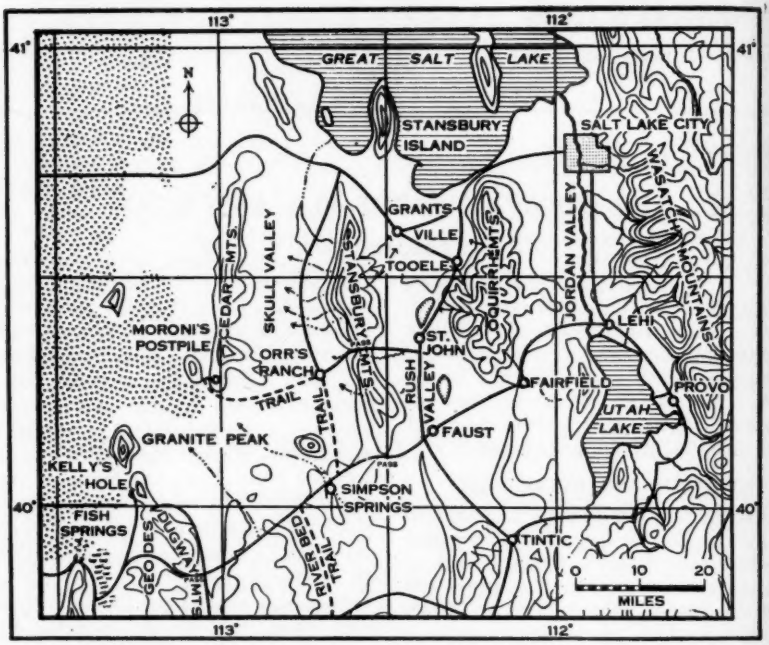



**Fig. 1 Outline map of a part of the Utah desert area, showing location of principal points of geologic interest, and access roads available to the general public. Contour interval is approximately 1,000 feet, lowest contour being 5,000 feet.**

**Fig. 2 Aerial view of the Dugway Mountains, taken from the northeast, at an altitude of about 15,000 feet. The flats in the foreground are about 4,300 feet above MSL., and the higher peaks are at about 8,000 feet MSL.**

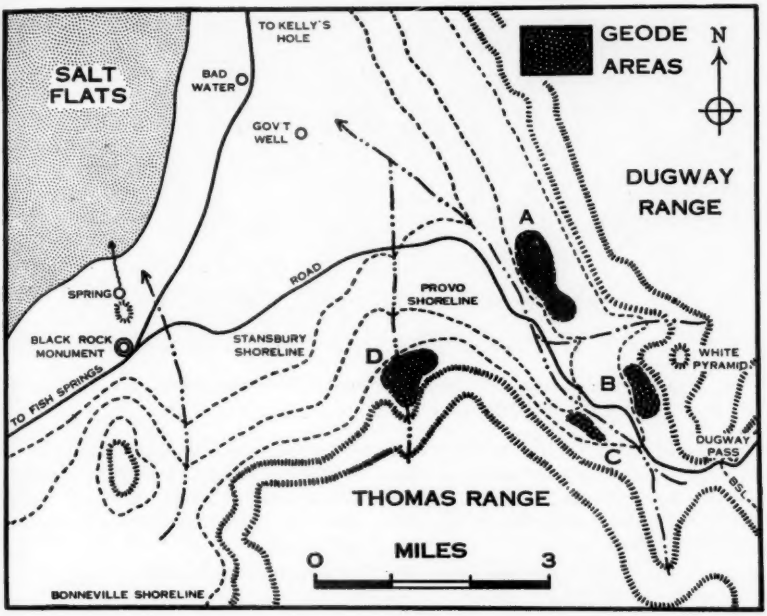



**Fig. 3 Location of principal geode areas. Location of the Black Rock Monument is Lat. 39°52′ N; Long. 113°18′ W; Alt. 4300′ MSL. according to best available surveys.**

shorelines is shown in Fig. 3. Resemblance of these geode deposits to some of the beach placers on present-day shorelines is remarkable.

Geodes in the main areas are found by the process of "seek, and ye shall find." They have the usual dark brown, uninteresting surface appearance, and may easily be mistaken for beach boulders of cherty material, which are also plentiful in the same areas. Geodes can be distinguished from boulders, in most instances, by their lesser density, and slightly botryoidal external surfaces. An average collector can pick up about 25 good geodes in an afternoon's collection. Some find several hundred in that time; and one poor unfortunate has made three trips to the area without finding a single geode!

Areas B and C contain geodes of a slightly different nature than A, in that cavities are larger, oddly-shaped, and in many instances incomplete, so that the interior crystals are weathered. Collections from these areas are likely to produce specimens of weird shapes, rather than speciemns containing beautiful banding and crystals.

Geodes in area D are much like those in A, but are less plentiful, and many specimens have a fill of red silicious material, instead of a lining of "agate" and a crystal-filled center.

Many of the geodes indicate, by the interrupted banding of the agate lining, that their formation was interrupted at least once, probably by earth movements. Filled fractures, imbedded crystals, and chert inclusions are common.

### TYPES OF GEODES

Study of a large number of collections from this area, most of them made by military personnel from an adjacent Army post, indicates that the geodes from this valley are not all of one type. All have a shell of red or brown cherty material, but the linings, while all banded, may be composed of agate, or of mixed agate and a

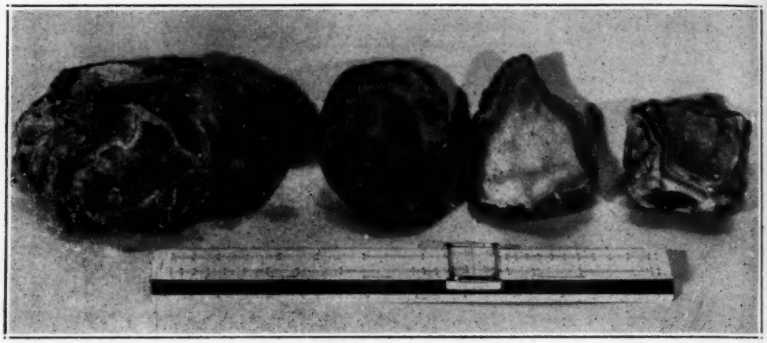


**Fig. 4 Typical geodes from the Dugway Placers. Note the interrupted banding of the lining in the two outer specimens.**

calcareous material similar to "cave onyx." Analysis of this material shows that it is composed of from 50 to 90 percent calcium carbonate (amorphous) with the remainder hydrous silica.

Crystals lining the cavity may be quartz, amethyst, dog tooth spar (calcite), or salt (largely halite, but with other salts intermixed). In a few instances, the central space is filled with kaolinitic material; and one had a core of red chert. Some of the geodes, when first opened, contain brilliant red crystals of quartz, but this fades in a few hours to dull brown or white.

Typical geodes from the Dugway Geode placers are shown in Fig. 4. These are the best specimens from one afternoon's collection.

A general view of the geode area, showing the "white pyramid", a fault block of rhyolite porphyry north of Dugway Pass, is shown in Fig. 5. Area A is left of center in this view; areas B and C are upvalley, and area D is up a dry wash considerably to right of center.

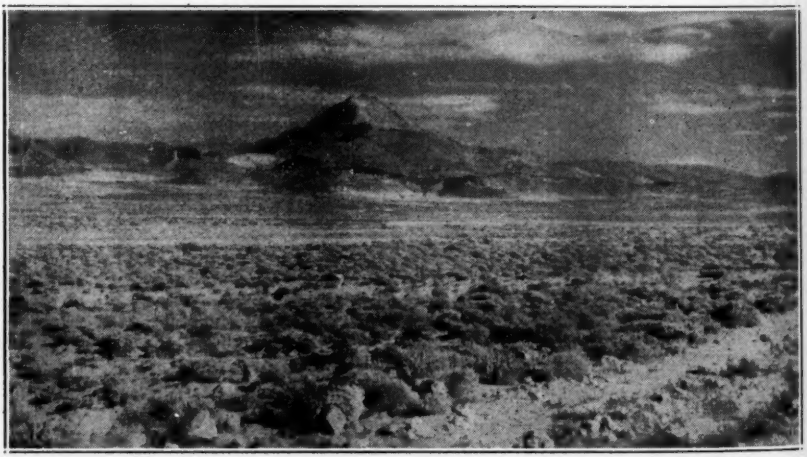


**Fig. 5 General view of the dry wash containing the Dugway Geode Placers. The white pointed hill near the horizon is the "White Pyramid" of Fig. 3.**

### OTHER AREAS

Numerous other finds of geodes in this general area have been reported, including one of a geode "as big as a jeep." Although most of these reports suffer from a badly misplaced decimal point geodes can apparently be found in several locations on the east side of the Dugway Range, and on the west slopes of the Thomas Range. Several of the "geodes" found in the Thomas Range do not appear to be true geodes at all, but are fossil sponges, with the original structure replaced by silica or fluorite, and a concretionary shell of the same material formed around them.

### CONCLUSIONS

Field study of the Dugway Geode Placers indicates that the area is one of interest to the collector despite its distance from centers of civilization, and that further study of the area, to determine ages, origins, and history, may be very desirable.

## GRAPHITE MINE IN CHESTER CO., PA.

BY C. A. THOMAS

706 Church St., Royersford, Penn.

The Benjamin Franklin Graphite Mine at Chester Springs, Pa., was an expensive undertaking where money was of little consideration. Huge quantities of graphite were urgently needed to build uranium fission piles which produced isotopes of uranium, namely plutonium. In spite of the fact that stocks of 97% and 99% pure ceylon graphite existed in this country at about the time the feasibility of using pure graphite was decide by physicists, the materials procurement heads decided to take no chances of running low on graphite. The B. F. mine was a huge but practically unproductive undertaking. As little as 3% or less graphite was extracted from one ton of highly metamorphic rock containing much quartz. Crushers continually failed to keep up with a rushing stream of trucks due to the inability of the crushers to handle over a certain quantity of quartz. It was a good try, however, and the project shows the all out effort expended toward assuring the success of the fission of the atom explosively.

The open pits of the new mine were alongside the old pits abandoned years ago. This writer was one of the first collectors to visit this interesting area. Beautiful iridescent limonite cements old fractures of blue quartz. Thin films of golden iridescent limonite make some of the clearer quartz look like gem opal. Some of the quartz is extremely difficult to fracture. This type usually contains nice groups of elongated glistening zircons of macroscopic size. A translucent lovely green crystal in cavities has not yet been postively identified. Massive green-blue material harder than steatite is an interesting specimen also.

The writer believes that some of the green-blue material may prove to be ceruleolactite. A large crumbly vein of brilliant yellow-green waxy serpentine or soapstone runs a few feet below the rim of the pit.

Dragon green micro-stalactitic iridescent limonite from these pits is a most beautiful green. All purple, all red all blue micro-mounts are also desirable. One botryoidal specimen is mostly golden with deep azure and burnished red spots at intervals. Colorless (grey) smoke molecules on tiny stalactitic limonite probably have a wave length too intermediate or mixed to show the usual iridescence. Pure sunlight is the best light source for viewing this interesting phenomenon of color.

### Jasper Occurrence in Australia

Large deposits of bright red jasper exist about 10 miles southwest of Gympie, in eastern Australia. The jasper, which takes an excellent polish, is associated with the manganese deposits on Eel and Pie Creeks in southeastern Queensland.

Gympie, a city of about 20,000 population, is about 100 miles almost due north of Brisbane, the capital of Queensland.

# McAFEE, N. J., LIMESTONE QUARRY

BY PETER ZODAC

EDITOR ROCKS AND MINERALS

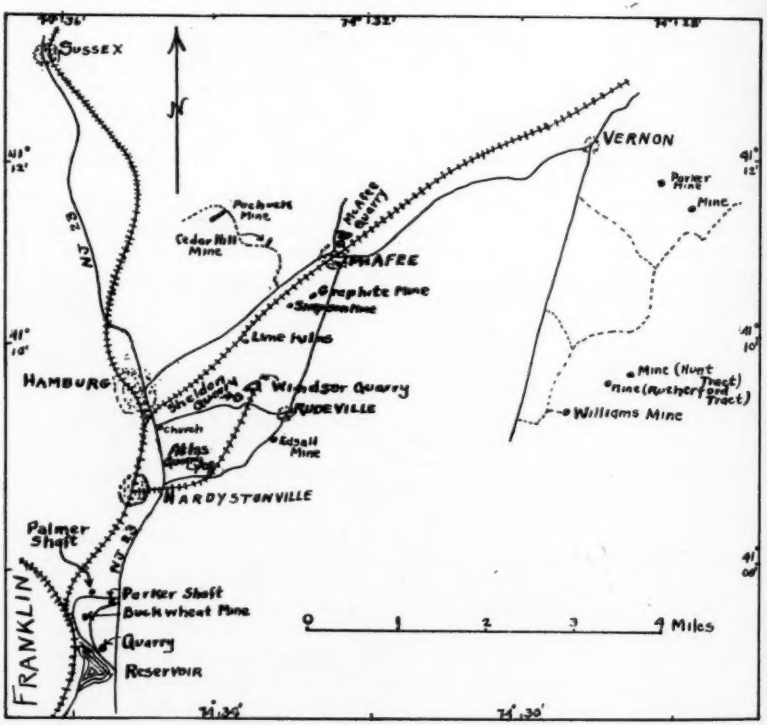
New Jersey is noted for its minerals and it is the northern part of the state where they are chiefly found. The two most important localities in the state are the zinc mines at Franklin and the trap rock quarries in and around Paterson—both are world famous for their minerals.

Among the many localities in the state which produce interesting minerals are some limestone quarries north of Franklin. These quarries are now all abandoned but as they were quite large with extensive dumps good specimens may still be found there.

The limestone quarry at McAfee is best known to collectors for two reasons—it still furnishes nice specimens and it is located so close to the main road that its large dumps may be seen for some distance, consequently collectors driving through the hamlet will invariably stop to investigate. The other quarries are off the main road and are visited only by those who know of their existance.

### Location

McAfee is a little hamlet in northeastern Sussex County (in the northern part of the state, and 6 miles southwest of the New York border). There are two quarries close together, the one seen from the




Sketch may showing some mineral localities north of Franklin, N. J.

road is about 300 feet in diameter with a wall face 100 feet high; the main quarry and plant are a few hundred feet to the north.

The quarry is a very old one as it has been worked for many years—in 1936 it was abandoned and according to posted signs, it was last worked by the Farber White Limestone Company. Dr. Horace Woodward, a former member of the R. & M. A. (died in 1942), informed the writer (Aug. 29, 1936), that the quarry was worked for calcite during World War I by the Bethlehem Steel Company and that much good stuff was thrown away on the dumps and that the dumps had been worked by the Farber Co., (On the dumps he found beautiful fluorite, nice epidote, and other minerals) The Bethlehem Co., had worked the deposit for many years, the calcite (or limestone) was shipped to their plant in Bethlehem, Penn., where it was used as a flux in the blast furnaces.

### Mineralogy

Quite a number of interesting minerals have been reported from McAfee and most of them have come from the quarry. The nearby iron mines may have furnished some interesting minerals, too, but if so the writer has yet to see one labelled as coming from them, nor has he visited the mines but expects to do so before this series of articles is printed.

Among the minerals known to the writer as coming from the quarry are:

*Amphibole:* Grayish masses of edenite found by Dr. Woodward. Nice dark greenish hornblende also occurs.

*Apatite:* A very nice 1" greenish crystal in white limestone was given the writer by Mr. Walter Kuenstler, a R. &. M. A. member from Cliffside Park, N. J. In his collection, Mr. Kuenstler has a number of nice apatite specimens from the quarry, including three loose crystals.

*Calcite:* Nice white cleavable masses.

*Chondrodite:* Brownish grains in white limestone.

*Epidote:* Nice greenish specimens found by Dr. Woodward.

*Fluorite:* Deep purple crystals in white limestone which often form beautiful specimens. Another interesting specimen in the writer's collection consists of small purple masses of fluorite in a dark grayish limestone.

*Graphite:* Lustrous black flakes and tiny crystals in crystalline white limestone.

*Molybdenite:* Thick masses with dark greenish hornblende on white cleavable calcite:

*Phlogopite:* Small flakes and crystals of a bronzy color in limestone.

*Pyrite*: Fine granular masses as thin bands surrounding small sphalerite masses in dark grayish crystalline limestone; tiny pyritohedron crystals of pyrite are also present in the same specimen which on its opposite face contains the small purple masses of fluorite mentioned above..

*Sphalerite*: small dark brownish grains in limestone.

*Talc:* Colorless flakes in limestone.

## Opals in Mexico Discovered in 1835

Mexico is noted for its fine precious opals and the two chief localities are Queretaro and Zimapan.

Opals in Mexico were discovered accidently in 1835 by an agricultural laborer at a spot 30 miles northeast of San Juan del Rio and the deposit worked. This first mine was called the Esperanza, the Spanish word for hope, as opal is a gem emblematic of Hope and Charity.

San Juan del Rio (St. John of the River) is a village of about 8,000 population in the southern part of the State of Queretaro. The village, whose elevation is about 6,000 feet above sea level, lies in a narrow, picturesque valley through which runs the San Juan River and a railroad. Many vendors at the railroad station offer opals for sale.

The city of Queretaro, with its nearby opal mines, is in the western part of the State of Queretaro; Zimapan, a small village, is in the western part of the State of Hidalgo, which borders Queretaro on the east. There is a San Juan del Rio in the central part of the State of Durango but no opals occur there, as far as is known.

# DIARY NOTATIONS ON COLLECTING OVERSEAS

BY C. HENRY KING

8405 Phila Rd., Baltimore 6, Md.

Robert T. Howard certainly did convert the author to mineralogy.[1] Military Service and oversea duty in particular voided the opportunity for actual field study of American Archaeology and What Better to Take its Place? Certainly digging and hunting for minerals is not unlike excavating for Indian antiquities. No wonder 'Bob' took time to interest and convert another G. I., for all avocations need to be shared for full enjoyment. Having been induced to go on a collecting trip (while on Corsica) the rest took care of itself. In just the time it took for mail to go to the States and return, the author became a regular member of the R. & M. A.

As the "Buddy" referred to in the majority of Howard's mineralogical jaunts in the Mediterranean area, perhaps a few personal, although amateur, observations will be of interest and supplement the knowledge of localities visited.

## MENNERVILLE, ALGERIA

As one travels the road in an easterly direction near Mennerville, Algeria, the road like the river which it follows, take the easiest route which is a narrow and rugged gorge. It is not necessary to be interested in geology to appreciate this mammoth cut. Everyone in the party of our truck convoy gaped at the breath-taking sight. Though the george is about 100 feet wide it accommodates the road and the river with difficulty and in place the road has been tunneled through solid rock. The height of the cliffs above the road is roughly about 450 feet. The length of the cut is approximately two miles. The multi-colored cliffs are various shade of grey, yellow brown, and red. In several places there were stalactites from the more prominent rocks overhanging the river. This is the first time the author has seen stalactites other than in a subterranean setting. It was not possible to stop here without blocking the other vehicles in the convoy so no specimens could be collected.

## MOUNT PELLEGRINO, SICILY

Palermo and its bay harbor is dominated by Mount Pellegrino and can be seen from the sea approach long before the rest of the shoreline is visible. A modern hotel is atop the crest of this mountain and affords as wonderful a panorama as can be seen in all of Sicily. This mountain terminates the range that crosses the northern Peninsula of the island from Mondello and appears as an abutment for the chain. The solitary road from the city climbs steeply to the top

**Portrayal of Hunter Finding St. Rosalie**

of Mt. Pellegrino but levels out somewhat beyond. Three miles past the hotel is the quaint church of St. Rosalie. It is a 'natural' church because it is a cave. Legend (?) has it that St. Rosalie disappeared from Italy and was not heard of again. Some years later a hunter entered a cave beyond Pellegrino and found a corpse which along with Religious effects was identified as the remains of St. Rosalie. The spot was destined as a church and a facade of travertine was built over the entrance. Aside from the altar, flagstoned floor, and a glass encased image of St. Rosalie, the cave is in its natural state and presents an atmosphere unequaled in any church in Italy. Lights placed well up between the stalactites filters out as a soft glow and enhances the interior. The church is not damp, although the resonant sounding Latin sermon is punctuated by the dripping from the stalactites. Getting a specimen from here would actually be vandalism, but possibly the friars could be persuaded to get a piece from behind the altar or other concealed place.

## CORSICA

*BONIFACIO* and the limestone cliffs have been thoroughly covered by Howard[2] and Mr. Zodac[3] but it might be added that the east coast road running north out of Bonifacio passes a quarry about five miles from town. A medium grained granite is quarried here and the crystals of Mica (var. Biotite) stand out so well they can be seen from the road. The quarry is 75 feet from the road on the right side facing north. At this point several houses are constructed of the granite so the place can be easily found.

*Brando Grotte*, a cave, on the northern end of the island known as Cap Corse, is located ¼mile south of Erbalunga. The road here is sharply curved and between an ice plant and another building can be seen a small stream cascading down over the rocks. Along side this stream is a steep and overgrown path but is not hard to climb because it has been terraced. From the road to the cave along this trail is approximately 250 feet. It appears that there was a quarry here and the cave accidentally exposed. At any rate, the entrance has been pointed up with cement and a door provided. Inside, a few steps have been hewn and the trail leveled somewhat to facilitate walking through the main portion which consists roughly of 300 feet of trail circling and finally traversing itself to exist at the entrance door. There are other 'corridors' which can be followed since there is no attendant present, but it would be well to keep to the defined walk since there is a chance of becoming lost. The interior is completely covered with stalactites and stalagmites, the largest being up to three feet in length. The large ones alone are stained light brown but all the small ones are pure white. The latter present the prettiest arrangement for there are many niches in the walls with these small white stalactites all the same length. The 4-inch ones taken as specimens had holes through them and if the tips were broken off would appear as meerschaum cigar holders. Indeed, they could be used as such, needing only a wooden or amber mouthpiece. The cave is in a compact limestone, but outside, the many trails and picnic clearings have retaining walls of Coquina.


**Left to Right: R. T. Howard, C. H. King, E. Johnson at Bonifacio, Corsica. Limestone hill in rear is example of wind erosion.**

This must have been brought from nearer the sea since none was seen 'in situ.'

## ITALY

*PORETTA.* This north Appenine town clings to a western mountain slope for at this point the valley is only wide enough to accommodate the river in its swelled stage and the people respect the high water mark of previous years. Duty in Poretta was definitely unhealthy, not because of the blustery cold, but because there were still a few German guns within range and they persisted in shelling the valley every morning at daybreak. When the last vestige of opposition was 'pushed' back the lull and conversion of Military plans provided an opportunity to visit Poretta's two limestone quarries. The unnamed quarry on the eastern side of the river had not been worked in years, but the shelling of the past week had loosened much rock and exposed some nice crystals of colorless calcite. The single crystals measured 1" x 1" and two clusters of these were taken. Poretta quarry, on the western side of the river, is large enough to be seen from the center of town. It was being worked under American supervision and the crushed rock used for road fill. At road level nothing of interest was found, but a climb up the left face of the quarry revealed shell-like crystals of gypsum (var. Selenite) covering large areas of the old quarry face. This seemed to have been a fissure from which the rock had broken away. The 'back' wall had recently been blasted and here in dirt filled fissures and cracks were found small but nice crystals of quartz (rock crystal). These crystals were of no definite shape and of the 30 collected no two were alike. The same type crystals were later viewed in the University of Florence and had also come from Poretta.

*VERONA,* Po Valley city immortalized in Shakespeare's *Romeo and Juliet,* was viewed from a tourist's standpoint, but a visit to the ancient amphitheater proved worthwhile since it added some marble specimens to the growing collection. Beneath the amphitheater, which is built of travertine, are many corridors that had been utilized by a local school to store maps and other teaching aids. At the time of visit equipment was being removed and among it was a box of polished marble slabs ¼" x 2" x 3" in size. All specimens characterized the local marbles and really was a complete collection in itself. Since the disposition of much of this material was the trash heap, the author inquired of the man in charge as to the possibility of acquiring them. He reponded by picking up the box and holding it out as a present! It was a wonderful gift. From his matter-of-fact attitude it is assumed that they were easy to replace and probably local marble workers had similar specimens in their shops all the time. Each marble slab has the name o nthe reverse side and seem to be local names such as: "Marmo Brecciato," Marmorosso Di Verona," ect.

## OFF TO STATI UNITI

In all, the indoctrination into the world of rocks and minerals has been delightful and interesting. Fortune would have it that a member of R. & M. A. was on hand to do the guiding, that opportunity was present to visit many fine localities, that local people in the personage of Mr. Roberto Palumbo (mineral dealer) and Professor Embertto of the Royal University of Rome,were more than willing to give detailed information and a chance to visit many municipal and private collections.

With the war over, 107 points amassed toward discharge, the author barely had time to grab a copy of "Nozioni Di Mineralogia" by Prof. G. Della Beffa (at a corner bookshop) before being whisked off to the U. S. A. Now in civvies, the Maryland countryside will be scoured by another rock hound with intent to collect, and pass on, any *information* of *sites deemed* interesting.

REFERENCES

1. Howard R. T. Collecting Overseas, Part 1 (Italy). *Rocks and Minerals*. Vol. 20, No. 2, Feb. 1945, p. 55
2. Howard, R. T. Collecting Overseas Part 2 (Corsica & Elba). *Rocks and Minerals*, Vol. 20, No. 7, July 1945, p. 307
3. (Zodac, Peter) A marine cave on Corsica. *Rocks and Minerals*, Vol. 20, No. 7, July 1945, p. 324

ADDITIONAL READING:

Howard, R. T, Palumbo, Roberto—The ancient volcano of Latium and the minerals of Ariccia near Rome (Italy). *Rocks and Minerals*, Vol. 20, No. 4, April 1945, p. 160.

English, Geo. L.—My collecting trip to Europe in 1891, *Rocks and Minerals*, Vol. 20, No. 9, Sept. 1945. p. 411.

Thurston, Anthony W.—An American Soldier visits Solfatara, Italy, *Rocks and Minerals*, Vol. 21, No. 1, Jan. 1946. p. 14

## Libethenite in America First Found in Arizona

Libethenite is a dark olive green basic phosphate of copper that was first found at Libethen, Hungary, hence its name. It is a rare mineral and found in only a few copper localities in the world.

It was first found in America in the Coronado mine as small olive-green crystals associated with quartz and needles of malachite. The Coronado mine is in the Clifton-Morenci district of Greenlee County of southeastern Arizona.

Libethenite has since been found as dark olive-green druses on altered quartz monzonite porphyry at the Empire-Nevada copper mine, Yerington, Lyons County, Nevada; in the Santa Rita district of Grant County, New Mexico; at the old abandoned Perkiomen copper mine, Montgomery County, Penn.; Tintic mining district of central Utah; and possibly elsewhere in the United States.

## Rutilated Quartz Occurrence in Australia

Very nice specimens of rutilated quartz (rock crystal and smoky quartz crystals both with needle-like inclusions of rutile) are found as water-worn pebbles in the tin gravels of Broadwater Creek, 2½ miles west of Stanthorpe, a town in eastern Australia. Amethyst, cassiterite, diamond, gold, sapphire, stannite, and topaz, all in pebble form, occur in the gravels. The rutilated quartz from the locality is highly prized as a gem stone.

Stanthorpe, a town of about 4,000 population, is in southeastern Queensland, close to the border of New South Wales.

## Limonite Pseudos in Pennsylvania

Limonite pseudomorph after pyrite crystals are found in many localities in southeastern Pennsylvania but they are especially common in Lancaster and York Counties where they are found loose in the soil.

In Lancaster County the crystals are found at many places but unusually find ones occur south of the hamlet of Neffsville. Cubes, pyritohedrons octahedrons, and combinations of these forms– all in dark brown crystals up to 3 inches or more in length—may be found. Neffsville is 3½ miles due north of the city of Lancaster.

In York County, fine cubes an inch or more on the edge occur around Schump's Hill on the southern outskirts of the city of York. The crystals are dark brown in color and occur loose in the soil.

### Store Shelves Are Full!

Editor R. & M.:

I think that advertisements in a magazine are just as important as the reading matter. To a mineralogist, the articles on geology, mineralogy, and related subjects are eagerly read and appreciated but this same mineralogist is just as eager and interested in knowing where he can purchase specimens and equipment. In fact he is often much more interested in where he can get supplies than in anything else that appears on the printed pages. Lots of advertising means to us customers that " the store shelves are full and we have a good selection to choose from."

Junius J. Hayes,
Salt Lake City, Utah

May 15, 1946.

# DIAMONDS COULD BE INEXPENSIVE — BUT!

BY DR. W. B. S. THOMAS
Dover-Foxcroft, Me.

One wonders why there are so few diamonds in the world and why they are more expensive than garnets. The "Old Retread" studied this problem in the last war. Actually there are plenty of diamonds and diamonds could be as inexpensive as garnets, were is not for various factors.

### British Guiana

In British Guiana diamonds are found. (*Rocks and Minerals*, May, 1946, page 281). Note that a gold expedition uncovered the fact that diamonds existed.

Georgetown, at the mouth of the Demerara River, is a busy town, famous for Demerara Rum exportation. Just a few miles from town are jungles. Our party often killed boa constrictors and large cats on canoe expeditions from the Georgetown airport.

We flew over these jungles, looking down on a mat of trees and vines. To the south were no mines, rarely a settlement.

There are no roads inland. There are no railroads. The only way to go inland is to get up an expedition, travel by water in boats as far as possible, and then hew the path to the mountains.

So little exploration of these mountains to the south has actually been done. It is known that gold and diamonds exist. Then why not build a road or a railroad to the mountains, Why not get a development company organized? Modern machinery would quickly bring a return on the investment.

The answer is this: The sugar interests do not want anyone building railroads, do not want the timberlands developed, because the present labor economics would be disrupted. The labor for sugar, for rum, was imported from the Old World. The wage is fixed, sugar is the crop.

If a railroad were built, the labor in the sugar industry would leave for better wages, the development of mines would necessitate labor in the mines. In short, development of mineral resources in British Guiana is not encouraged because it would embarrass agricultural economics.

### Brazil

Now let us turn to Brazil. There are many diamond-bearing areas in Brazil, some as yet undiscovered, for again one does not find a road leading inland. The is no railroad across the country or into the mountains. This is not because of the Amazon basin. There are only two places in the whole river where one can see across the river even from a plane at 5,000 feet! The branches and tributaries are so numerous that bridges of any material could not be built to withstand the river. The river is not one stream, it is many interlacing parallel streams. The beds of these change constantly so that a bridge this year may be over a gully next year, or inundated another, due to floods.

The only way to get to Manoas, at the junction of the Rio Negro on the Amazon is by boat or by air. The trip is long and tedious and has been largely discontinued. The air route is rapid but expensive.

From Manoas, up the Rio Negro (Black) to the Rio Branco, must be by canoe. As one gets above the rubber development area, one encounters savage Indians who feel that any outsider must be killed. The Army Air Forces Mapping Services lost two men in this area. They were killed in this war by bows and arrows! Just above this area there are numerous deposits of alluvial diamonds.

On the south of Brazil, on stretches of the Rio San Francisco, are more diamond-bearing gravels. The Indians dig for them with a small shovel. Finding a gold nugget is bad luck, so the nugget is flipped into the stream!

One wonders why some American has not gotten modern machinery, modern engineers, and capital enough to go in there and make a fortune.

John Dubois, of Dubois St. Dubois, Pennsylvania, can give you the answer. Before the war he had that bright idea. He went exploring and he visited the various alluvial deposits in Brazil. Johnny

speaks Portuguese like a native. He is a pilot of no mean ability. He can return anytime he wants to return to the area using a small sea-plane. Why is not Johnny a millionaire?

When Johnny got back from Brazil he had a couple of cigar boxes full of diamonds. He went to a New York firm with his diamonds and they said, "Goodday, we do not want any." He argued that even if the diamond syndicate did say South American diamonds were inferior, softer than African diamonds, he still had some white and blue-white diamonds.

The gist of what they told Johnny is this: "We control the diamond market. You are an outsider, horning into a legitimate business—we control the buying, the cutting, the outlet to selling. Goodday!" Johnny was carrying millions in diamonds, which because of the brief brush-off made the diamonds simply interesting mineral specimens. They showed Johnny the storage vaults. His eyes bulged. They could unload diamonds so fast that the market could be flooded, but they controlled the release and held the price.

Then Johnny found that the war dispersed the diamond cutters. Some of them were refugees and went to South America to escape the Nazis. Brazilians could now get diamonds cut by experts, could undersell the market. Again there was hope. But meanwhile Eastman Kodak has bought the diamonds from Johnny—for the diamonds were now just commercial diamonds and only worth a few dollars a carat.

The Brazilian government decrees that one must have a license to mine gold, silver or diamonds. Every industry has a license. They believe in "Nationalization of the Soil." No foreign capital can come in, put in modern machinery and with engineers develop a mine property and then take the huge earnings back to the country that made the investment. The owners must be Brazilians. If an American became a Brazilian in order to accomplish this purpose, he would find that he was a Brazilian indeed. He could not get a travel permit back to the United States and the wealth he had accumulated was also Brazilian. "You cannot take it with you."

**Gold Coast, Africa**

The mines in British West Africa, Gold Coast, are near Accra. Many rumors of five carat stones were heard but in general none of the stones would reach a carat, were almost exclusively commerical diamond quality, being fragmented or full of carbon. However, the "Old Retread" acquired many fine XIs of octahedrons, triangles and twins which while small fluoresced and phosphoresced. These were clear, some blue-white and a few green.

The market is British controlled. Black market and underground illicit trade flourished during the war to the benefit of the Germans.

Does this answer your question why diamonds are more expensive than garnets?

## Marble in Missouri

Limestone is widely distributed throughout Missouri but the two chief localities for marble are located at Carthage and Phenix in the southwestern part of the state. The marble is a white crystalline limestone which takes a fine polish and has been widely used throughout the United States for interior decorations. Nice crystals of calcite and dolomite are often found in the limestone.

Carthage, a village of about 12,000 population, is in the central part of Jasper County. Phenix, a hamlet of about 600 population, is in the northwestern part of Greene County.

## Brehm Opens Lapidary Shop

Opening day of B. M. Brehm's new lapidary shop took place at 990 Dana N. E., Warren, Ohio, on Sunday, June 16th 1946. Guests were present from Cleveland, Canton, Youngstown, and the vicinity. The new shop is fully equipped for gem cutting. The thirty guests made close inspection of cuttable stones and large display room of cut and polished gems and slabs of all kinds. Visitors are welcome anytime.

Mr. Brehm is a member of the R.&M.A.

# ARKANSAS STONE OR PURE NOVACULITE

FRANCIS J. SCULLY, M. D.
Hot Springs, Arkansas

Along the slopes of Quarry Mountain and several other neighboring ridges are to be found old quarries from which were mined large quantities of pure novaculite, then known as "Arkansas Stone." Most of the shafts of these quarries descend almost vertically into the slope, as the folding of the earth's surface in this region has been both sharp and extensive.

These deposits were laid down by sedimentation in the early Silurian seas, and later elevated high above the sea level with much folding. Later erosion during the past ages brought the compressed deposits of novaculite to the surface where they appear as outcrops of hard stone along the slopes of these old folds.

These deposits of novaculite are large and probably the most extensive to be found in this country. The veins vary from a few feet to twenty feet in width, and extend deep into the slope. Much of the novaculite has been crushed into fragments, or split along natural cleavage planes. For this reason the dumps are large and are made up of huge piles of shattered fragments of novaculite. It has been estimated that the material discarded was over twice the amount of useable and suitable stone that was shipped.

The main quarry was located on Quarry Mountain and was known as the Whittington Quarry. On the extension of Quarry Mountain across the gap through which now flows Gulpha Creek was the site of the Sutton Quarries. Smaller mines were located on Indian Mountain which lie just north of Quarry Mountain. Practically no mining has been done for over twenty years, except for small scale operations on Indian Mountain in the past three years.

Unusually fine novaculite was obtained from the Whittington Quarry, and up to 40,000 pounds were shipped each year. Other quarries increased this amount to 60,000 to 70,000 pounds some years. Some of the smaller quarries produced a softer and more porous form of novaculite, known as Ouachita Stone, which was considered inferior to the Arkansas Stone.

Most of the novaculite was shipped to the Pike Manufacturing Company located in New York, for the manufacture of whetstones. These whetstones were of unusually fine quality and equalled the best razor hones obtainable. They found wide usage in many trades and professions where they were used to sharpen instruments and tools for engravers, surgeons, dentists, jewelers, cutlers, and manufacturers of fine edged tools. Locally the fragments of novaculite, not suitable for shipment, found use in rock walls and decorative rock work. Before the white man came, the Indians used this stone for arrow-heads.

Pure novaculite is a crypto-crystalline silica, made up of extremely fine granules of quartz. Analysis shows it to be 99.5% silica. It is so hard that it cannot be scratched by a knife point, but can be marked by quartz. In turn it can scratch quartz so it has about equal hardness. It is very brittle and is easily chipped with a hammer, though it fractures very unevenly.

The Arkansas Stone which is a very pure form of novaculite has a milky white color with a bluish watery tint. It has an egg-shell luster and is translucent in thin section. It is hard, dense, and very brittle, breaking irregularly with very sharp edges. Occasionally it may be found in reddish or brown colors due to the presence of iron salts.

Many visitors to Hot Springs National Park, where these quarries are located, on finding these old quarry dumps, become much interested in this peculiar hard milky white stone, and through the years great quantities of these novaculite fragments have been carried to all parts of the United States.

# EMPLOY HELICOPTER FOR FIRST TIME TO EXPLORE REMOTE MINING REGIONS

With remote regions of Northern Canada as their goal, an expedition of 10 men is carrying out extensive tests with a helicopter over mineral areas in Sudbury, Ont., which may result in revolutionizing geophysical surveying methods and open hitherto impenetrable mining fields.

Headed by Hans Lundberg, vice president, Lundberg-Ryan Air Exploration Co., Toronto, the expedition is employing a helicopter as a mining tool in combination with the latest magnetic and electric aerial exploration devices to discover and record new mineral and oil deposits.

Lawrence D. Bell, president of the Bell Aircraft Corporation of Buffalo, N. Y., who is working with the Army on planes faster than sound, has placed at the disposal of the expedition a Model 47, coupe-type helicopter along with helicopter pilots, ground crew, mechanical and instrumentation experts and a truck completely equipped as a machine shop.

After thorough tests at Niagara Falls, the helicopter was flown here by Floyd W. Carlson, Bell chief helicopter test pilot, who will be in charge of the technical and mechanical staff.

Highly sensitive magnetic instruments, developed by Mr. Lundberg, have been installed in the helicopter. Additional tests of the stability of the helicopter and its effect on the highly sensitive instruments were carried on in secret. Mr. Lundberg said there was such little vibration in the Bell helicopter that only minor adjustments in the instruments proved necessary. He and his colleagues are now making experimental flights over nickel and other mineral deposit areas here, where geophysical surveys already have been made by ground methods. Most of these are blind areas, unknown to Mr. Lundberg, and only after checking his maps with those already in existence will he be able to determine the practicability of the helicopter as the most modern means of aerial geophysical surveying.

Shortly after the first World War, Mr. Lundberg used magnetic instruments in a captive balloon to investigate mineral deposits in Sweden. This procedure proved cumbersome and difficult, but results were promising. His next experiments were made with a large kite. This method was less expensive and less cumbersome, but proved unsteady and the instruments often were damaged when the wind hurled the kite to the ground.

"Knowing that such aerial surveys not only are practical, as proved by the use of the magnetometer, or 'aerial doodlebug,' for spotting enemy submarines during the war, but that they are measurably less expensive than surface geophysical surveys," Mr. Lundberg related, "Mr. Ryan and I felt that the helicopter was the most practical and least costly method of making these surveys.

"Our specifications for such a craft necessarily had to be rigid," he continued. "We needed a vehicle with a minimum of vibration; it had to be able to fly at any speed from one to 80 miles per hour; be able to rise or lower, move backwards or sidewise, or even stand still in midair so that we could make accurate readings of the instruments, and be able to land in or take off from a very limited area.

"The Bell helicopter came nearest to these specifications. Mr. Bell saw vast possibilities, not only for the future of the helicopter, but for the economic advancement of Canada and the United States in this venture and readily agreed to put one of his helicopters and a technical staff at our disposal."

Mr. Lundberg has refused to reveal the nature of his instruments, preferring to wait until they have been thoroughly tested. However, he feels that they are an advance over the magnetometer, recently announced by the United States Navy Bureau of Ordnance and the Navy Bureau of Aeronautics as being used to ferret out German U-Boats.

"Tests have shown," he said, "that while magnetic anomalies were easily observed and recorded from a conventional airplane, the correlation with points on the ground was still rather vague. By the time you took the reading on the instru-

*(Continued on page 431)*

# MINERALS—YESTERDAY, TODAY, and TOMORROW. PRIORITY No. 1

By ROBERT ALAN LEVINE (13 Years Old)

We have just finished fighting one of the greatest wars of all time, probably the greatest. We have won this war, thanks to the cooperation between the allies and the spirit of the fighting man. But that's not all; one major factor to bring about victory was minerals. Now there lies a far greater war ahead, the fight for peace. This fight must be won and controlled primarily by strategic and critical minerals; for it is absolutely essential that man must have a tool to build the peace, and this tool will be the minerals and metals of our day.

Minerals are an absolute necessity to this modern world. They have always been a necessity. We have seen the great progress forged by minerals from the time of the cave man to modern society, the tremendous expansion in the use of minerals and metals.

In the middle paleolithic (old stone) culture, primitive man had already delved into the use of rocks and minerals. But slowly his crude methods of using any stone available for his weapons and other tools became obsolete, and he substituted specific minerals and rocks. Quickly he learned to tell one mineral from another. He recognized the quartz family for its hardness and fracture, graphite for writing, flint for his arowheads and axes because it was so brittle and hard and could easily be chipped into shape. He took minerals with color for ornamental purposes and he selected pulverized iron ore to make paint for use on his body; all these and many more minerals were used for various purposes. The next group of people to advance the Neanderthal man's use of minerals was the American Indian. He too used flint for his weapons, but advanced the process much more. His tools used in processing minerals progressed to a high degree. The natives of so-called "Dark Africa" used agate and jasper for their jewelry. Also it was said that they had possession of gold and knew ways of processing it. Then around 5000 B. C. a new and startling discovery was made by the Egyptiaans. They discovered a metal that could be pounded into shape, Copper. By 3200 B. C. a new age began. The neolithic culture dissolved and man climbed the first step in the processing of minerals. Thereafter he realized that by applying heat to minerals they could be converted into metal alloys. The Egyptians applied heat to copper and tin and discovered bronze. This metal, because it was so tough, was used extensively; and another age began: the Copper-Bronze. More minerals and metals came into the picture: Gold, Electrum, Silver, Lead, and finally Iron. And 1000 B. C. brought another era, the iron age. Yes, man learned fast. These startling discoveries influenced his whole way of life.

Now we have progressed through the hundreds of thousands of years to a point where we are completely dependent on minerals and metals. We are now living in the so-called "Industrial age". We need minerals and metals for literally everything. The machine, the car, the plane, ship, railroad, the stove, radio, chemicals, lights, buildings, and various sundry articles such as the typewriter, needle, hammer and nails, the zipper, flashlight, and so many, many more. Actually the minerals and metals we use affect our industry, health, safety and government. In short, they affect our whole way of life.

And what about tomorrow? Man will depend on minerals as never before. He will be in such great need that he will fight for them. Will wars recur or can't we figure out a way to provide an adequate supply for everyone? Slowly

*(Continued on page 438)*

## "ME AND PA." TWO OLD ROCKHOUNDS.

Dear Editor;

Pa said to one of his rockhound friends, "It's the little things that count sometimes to take the joy out of an otherwise pleasurable hobby. This is the case with the lapidary, after working diligently with a cabochon on a well worn sander, in taking out the last tiny scratches you take another look and find, to your dismay (and strain on your patience) new scratches. Then you go over in your mind all the suggestions of what may have caused the trouble—maybe some rolled up grains—maybe the cloth was contaminated—could have been some coarse grains from my hands—and so on! But did anyone ever tell you to take a rough piece of quartz and press hard against the center of your new sanding cloth in order to wear out all the grit there for a space of one and a half inches diameter at least. The slow surface speed with which the grit comes in contact with the specimen is about the same as if you were dragging it over a stationary pile of grit and only hit a few high spots. Try it if you doubt the outcome.

Carelessness or ignorance have sometimes caused the advertisers to be called liars because of the claims made for their diamond saws. To say nothing about loose bearings and bumpy belts and many other causes for constant vibrations; while the saw is cutting they allow saw dust, quartz slivers, crystals and debris to collect in the reservoir until the saw has whipped all of the lubricant out then they add more *without* removing (shoveling out) the rock pile. Could anyone be so ignorant that they do not know that the saw cutting through that 'Conglomerate' wears away the metal and releases the diamonds faster than cutting the solid rock? An experiment would prove that the saw would wear out without cutting any specimen in your vice if allowed to run in that sludge in the bottom of the reservoir. I think it would be good advice to shovel it out once in while and quit cutting the same specimens over and over again in the shape of that saw dust and rock splinters and chips.

Pa seemed to be loaded with suggestions as he just proposed another little aid to those who discover scratches on specimens they considered ready to polish. He said, "While making the final lapping stage and after drying the stone for examination just touch it on the well worn sander and those scratches will show up plainly if there are any left."

Pa just noticed that J. Harry Howard has a revised edition to that wonderful book, "Handbook for the Amateur Lapidary", and I guess that will be all for this time; he has always boosted that first book of Howard's so he will likely be making out an order for the new one.

With best wishes, sincerely,
Me, of the Two Old Rockhounds.

## DO YOU SPREAD ERROR?

BY MARK M. FOSTER

An error it seems is often more readily implanted than truth and once error has been taught and repeated it is far more difficult to eradicate the error and supplant truth than it would have been to have implanted truth in the first place.

One error we commonly hear in amateur mineralogical circles is; "Diatomaceous earth is the silicified skeletal remains of tiny sea animals." I have even known of one high school teacher of minerology who had and taught that erroneous idea.

Diatoms are not "animal life" but *plant life* known as "Thallophyta": (Greek origin word) thallos; young shoot phyton; *plant*. They secrete delicate siliceous shells which accumulate over large areas of the modern ocean floor as "diatom ooze." The above information is gleaned from Physical Geology by Schuchert and Dunbar 1941 edition.

Consult the text books of any masters of geology and mineralogy for substantiation.

# CORPORAL CLAY HENRY HOLMES

**OCTOBER 22, 1925 — SEPTEMBER 19, 1945**

It is with much sorrow that we announce the death of Corporal Clay Henry Holmes, a member of the R. &. M. A., who lost his life by drowning on Sept. 19, 1945, near Minz, Germany. Cpl. Holmes, while serving with the U. S. Engineers who were erecting a bridge over the Rhine to replace an older structure, fell into the river unnoticed and was drowned. Part of an official Government report to his parents read as follows:

"This report discloses that on the morning of the 19 September, Corporal Holmes was working on the midnight to eight shift on the Rhine river bridge. He was working on two barges driving piling for a navigation span in the bridge. He operated the cutting torch on both barges. At three o'clock he went with the others to the mess hall to eat and was last seen at four in the morning with hose and gauge over his shoulder going from one barge to another. When the men loaded into the trucks to return to the area he was missing. His comrades checked the barges and searched the shore of the river. While working he had fallen into the river and drowned. His body was recovered on 24 September. He was on duty status at the time of his death.

"The tragic and untimely death of your son is deeply regretted and my heartfelt sympathy is with you in your sorrow. May the knowledge that he served honorably and faithfully in his country's cause be a source of sustaining comfort to you."

Sincerely yours,
Edward F. Whitsell
Major General
Acting Adjutant General of the Army.

Clay was born in Kane, Penn., on Oct. 22, 1925, the son of Mr. and Mrs. Noah H. Holmes. He graduated from Mt. Jewett High School with the class of 1943 (the third highest in his class). He passed the ASTP tests at that time. On Aug. 23, 1943, he enlisted in the U. S. Army Reserve Corps and was sent to ASTP at the University of Florida. After the completion of the first course at the University he had reached his 18th birthday and was then sworn into the regular army (in the engineering corps). October, 1944, found him in England. A few weeks later he was in France, then in Belgium, Luxemburg and Germany. He was with the first army most of the time-building bridges, roads, etc.—in the drive through Germany. He visited Buchenwald prison camp and wrote home a vivid description of the horrors found there. He also wrote of a delightful trip through the Swiss Alps on a 10-day leave and how much he enjoyed the scenery and the cordial reception extended by the Swiss people. After returning from this trip his old outfit was de-activated and he was transferred to another one, where he was at the time of his death.

Clay became interested in minerals and fossils when he was a youngster of 8. When he was 10 his mother gave him at Christmas a collection of rocks and minerals (200 specimens). In 1937 a

**Corp. Clay Henry Holmes. Photo taken in Frankfurt, Germany.**

young man friend gave him English's "Getting acquainted with minerals" which really started him off on mineral collecting for the book gave him the names and addresses of *Rocks and Minerals* and *The Mineralogist* for both *of* which he subscribed immediately and never allowed to expire. Most of his spending money went for the purchase of minerals, books, cabinets, fluorescent lamps, etc. Each summer the family would take a two weeks camping trip during which each member would participate in collecting minerals. The New England and eastern states, Ohio, Illinois and others were visited, including Quebec, Canada and many minerals collected. One of these trips was to New York where on Aug. 13, 1940, they called on the Editor of *Rocks and Minerals,* in Peekskill, who had the pleasure of guiding them to the famous Tilly Foster and Bedford localities and others of lessor importance.

(The Editor still retains pleasant memories of that trip for young Clay's eagerness and zeal in collecting and his gratefulness for any assistance extended him plus his gentlemanly conduct cannot be forgotten too easily. What a tragic loss to mineralogy is his passing at so early an age).

At the time of his death, Clay had a very creditable collection.

Clay is survived by his parents who reside at Kane, Penn. (Rt.1), by an older brother, James Nellis Holmes, age 23, who was a First Lieutenant in the Air Corps (Fighter Pilot) now discharged, and by a sister, Joan Marlene Holmes, age 15. To his parents, brother and sister, the Rocks and Minerals Association extends its deepest sympathy and joins with them in mourning the loss of a dear son and brother.

Clay Holmes is the second member of the R. & M. A. to lose his life in the service of his country.

Peter Zodac

## NEMALITE OCCURRENCE IN ALASKA

BY FRANK H. WASKEY, Aleknagik, Alaska

On page 19 of "Asbestos and Jade Occurrences in the Kobuk River Region, Alasko" by Eskil Anderson[1] occurs the following: "A colorless, glassy and somewhat brittle asbestiform mineral is common in serpentine areas on Shungnak River and Cosmos Creek. Specimens of the mineral—were identified as nemalite, an unusual variety of brucite. Only a few occurrences of nemalite have been recorded and no commercial uses have been developed as yet. If the mineral becomes available in quantity it may be possible that some utilization can be made of its most distinctive characteristic, a perfect cleavage which permits its subdivision into extremely fine, almost invisible fibers."

During the War, urgent need for the high grade tremolite asbestos of the Kobuk Region occupied the attention of the mining interests thereabouts and little development of the nemalite occurrences was possible.

Whether or not, utilitarian use are found for this unique mineral, it is certain that many advanced collectors will have it displayed prominently among their show pieces.

Until one has seen, and marvelled at, its most extraordinary cleavage, one can have had no similar microscopic evidence of the infinitely small.

In a specimen lot in the possession of the writer, the porcelain-white fibers, from 8 to 11 inches long, in diameter comparable to the finest human hair, may be seen splitting into two, five or a dozen still finer strands. Strange to say, the finer the subdivsion, the less brittle the fibers.

Incidentally the Kobuk tremolite, silky fibered, silky lustered, with just a suggestion of ethereal green in its shimmer; is also worthy of the spot light in any mineral collection.

Speed the day when these fibered "gems of purest ray serene" will be available to those who love, and love to admire the Creator's 'sermons in stones'

1 Territory of Alaska, Department of Mines, Juneau, Alaska

# JEFFERS AGATE FIELD IN NEW MEXICO

By LOTTIE M. NEELY

I stepped out of the car and stared at the hillside before me; it was literally covered with a white rock. It looked like agate, but it couldn't be, there were never that many agates in one spot. I rushed over to those white rocks and picked up one, then I grabbed up another. I was speechless! They were agate, beautiful agates, and so thick upon the ground that I was standing on them. There were littles agates and big agates, agates that would weigh fifty pounds. It was like a dream, I could hardly believe my own eyes. Why were there so many agates? As I stared it dawned on me. — I was standing in the middle of a virgin agate field. There wasn't evidence of another collector having disturbed those rocks, there were no pits in the ground to show where rocks had been removed. There wasn't a broken agate upon that field, no "hammer-hounds" had been there. Those big agates had not been rolled out of their nests in the ground, the moss and the lichens on the rocks gave mute evidence that they had never been disturbed by mankind.

It is not so now! I am sorry but I had to roll-over some of those big fifty pounders. I brushed away the dirt and scratched away a few lichens that I might admire the beauty of the stones that had waited down through the eon of time for my arrival that Saturday morning, December 22, 1945.

This spot in New Mexico shall be known to all collectors and mineralogists as the "Jeffers Agate Field". I hereby name it in honor of a World War I veteran, James M. Jeffers, who lives at the foot of Alum Trail on the Gila river, in the wilderness area of the Gila National Forest.

The three of us, Mr. Neely and I and our neighbor, Mr. Frank Middaugh, all of Colorado, had come to this spot by appointment to meet Mr. Jeffers that Saturday. When Jimmie had directed us to this 'saddle' on Alum Mountain he did not know he was directing us to a new agate field. Jimmie is not a mineralogist, those white rocks meant nothing but the blende in a beautiful landscape. Jimmie Jeffers tends towards archaeology as a hobby, he is a lover of the 'wide open spaces,' and looks out at the world through eyes that are not 'blinded by the sight of things' a man whose friendship you would be proud to possess.

To collectors, prospectors and you, who like to hunt and fish, here are directions into New Mexico's most remote and unprospected area which lies between Grants and Silver City, going in by way of Jeffers agate field.

North of Silver City, New Mexico, is an old mining town called Pinos Altos (tall pine), where prospectors still make a living panning coarse gold from the stream beds. From the Pinos Altos store it is 25 miles to the agate field. Go north out of Pinos Altos on the Cheery Creek road (graded dirt road), follow this main road to a three-way fork, the Forest sign on the left, has a sign pointing left, which says Sapillo 10. Take this left hand Sapillo road and go over the pass onto the Sapillo, which will have a large corral with a loading chute on your right, you cross the Sapillo on a hundred yard cement spillway. Within a few hundred yards you come to a Forest sign on your right which says, 'Copperas Canyon Road Gila Wilderness Area.' Take this left hand road, leaving the graded dirt road. From this sign its 6.8 miles to where you stop your car. I cannot recommend this six mile of road, until very recently only the Hunting Lodge truck went through, or pack horses met you at this junction. You travel mostly up a dry creek bed. If it's after a heavy rain, you will have to roll bowlders out of the road. Getting up out of the creek beds the road is rough and steep, embedded rocks means high centers that have to be dodged. You can't get off the road there is only the one. Two-thirds of the way up you pass a fenced-in spring on your right, there is a big water trough and salt trough for cattle. Continue on up this road until you come out upon a 'saddle' (low

ridge) between two mountains. There is a four wire fence on your left, just back from the road and a nice place to turn around. There is the black camp-fire ashes on your left. Stop your car here, do not go up the rocky hill ahead. This is where some hunters leave their cars and go by pack horse deeper into the wilderness region, via the Alum Trail which begins at the gate, down the fence to your left. Sign on the tree says 'Alum Trail'.

From where you stop your car, the agate deposit is just ahead on the left side of the road. This agate runs from milk-white with a taffy color inclusion, in plumes, flowers and splotches, to a clear chalcedony with fine lines. Other agates are a clear dark carnelian, some black moss occurs in a clear chalcedony. There are some dark red jaspers with fern inclusions. A few chalcedony roses covered with a bluish drusy quartz.

For the benefit of collectors that wish to prospect farther into this territory, the road goes on from the agate field past a Hunting Lodge and to Jack Hooker's Heart-Bar ranch. The Gila Cliff Dwellings National Monument is near the the Heart-Bar. If you desire to go by pack horse, you may get in touch with James M. Jeffers, General Delivery, Silver City, New Mexico. Jimmy is a private packer, very congenial and efficient. He will guide you any where you wish to go, or you may take his horses and go on your own. This wilderness area is large and very rough and well mineralized. Where you stopped your car at the agate field, the mountain in behind you is Alum Mountain, referred to under the Alum Group in Dana's *Textbook of Mineralogy*, fourth edition by W. E. Ford.

Across the fence at the agate field looking down Alum Canyon toward the Gila River on the left hand side of the canyon, you will see pinnacles and white bluffs. This white coloring is incrustations of Alum. Those pinnacles which look very near is over a rough five miles in the distance.

A few suggestions. Carry food and water, your car may get hot on that last six mile climb. If destitute for shelter there is an 8 x 8 tin shack, with horse corral behind the shack, at the head of Alum Trail down the fence to your left from the agate deposit. There is a telephone box on down the road from the agate field to be used in case of an emergency.

The scenery is beautiful, the agates are plentiful, may you enjoy this our second "Field Trip".

## Finest Polybasite in Arizona Occurs In The Silver King Mine

Polybasite is a rare silver antimony sulfide of an iron-black color. It often forms beautiful crystals and resembles stephanite with which it is commonly associated.

The finest crystals of polybasite from Arizona have been found in the upper levels of the Silver King mine, near Pinal, Pinal County, in the southern part of the state. Magnificent crystallized and wire specimens of native silver have also been found in this silver mine. Other minerals found in the Silver King mine are antlerite, argentite, aurichalcite, barite, bornite, calcite, chalcopyrite, galena, pyrite, quartz, siderite, sphalerite, stromeyerite, and tetrahedrite.

## HELICOPTER EMPLOYED FOR FIRST TIME

(*Continued from page 425*)

ments the airplane was many miles beyond the point of magnetic contact. With the helicopter, we will be able to back up, move to the right or left, or up and down, until we have located the exact spot where we get readings of interest."

Mr. Lundberg expects to prove to the government that surveys by the helicopter can be accomplished by his method in less than 10 years, as compared with 100 years by present methods.

Mr. Lundberg's son, Sten, will have the responsibility of flying supplies to the expedition in his Fox Moth plane when it gets beyond the boundaries of civilization. A 10-ton truck is a mechanical workshop on wheels, complete with tooling machines and all spare parts which conceivably might be needed for the helicopter. It is staffed with trained Bell helicopter service department technicians. Automobiles will bring supplies from the nearest point of civilization to the Lundberg-Ryan base.

# FUNDAMENTALS OF LARGE WHEEL CARVING

BY LUCILLE SANGER

1922 Newport Avenue, Chicago, Illinois

For those hobbyists who have written expressing their pleasure in cutting the pieces described in a former issue, here are a few simple rules which anyone who cuts cabochons can fellow.

The great majority of cabochon cutters are content to cut the standard size and shape cabochons, either for jewelry or a collection, or for both. There is certainly nothing wrong in this especially since many types of stones do not lend themselves to any other form of cutting. However, when the field is surveyed and account taken of the vast numbers of different kinds of stones to be had, and the large numbers of different shapes that the stone themselves suggest, it seems a shame that there has been so little done in using the semi-precious stone as an art form. The following types of cuts and how to achieve them, will, we hope, help to remedy this situation. It will also add glamour to one of the most interesting hobbies which exists.

The first and foremost rule is: do not run the risk of spoiling a prized piece of stone in a trial effort. Many cutters will need quite a little practice before they get the "feel" which will give them the sure touch they need to place the cuts just where they want them. There are few rockhounds with the courage to throw a colorful piece of stone away, which is fairly good, even if it is in a form which could not possibly yield a good cabochon. Pick out some of these pieces, or if you do not have any good ones for the purpose, then try prospecting in the rock garden for small stone. The cutter loses nothing if they are ruined .

These pieces lend themselves better to carving in the round as flattening an irregular stone entails a great deal of work. However, if a slab is used, the shape may be drawn on the slab. The cutter who really enjoys this type of work will undoubtedly prefer the freehand method. When the finished shape has been firmly fixed in the mind of the cutter, decide just where is the best place to begin and exactly what kind of a cut to make, then make it. There must be no confusion in the mind of the worker as it will be plainly shown in the finished piece. This type of carving may be finished in the round or with a flat back as in the ordinary cabochon cuts, the final use of the pieces determining the matter.

All of the cuts necessary to make any shape on the large wheels are shown in Figure 1: the "V", the Crescent, and the curved Outer Surface.

The "V" is made by holding the stone against the sharp edge of the wheel, Make the crescent by holding the stone against the sharp edge of the wheel, and when a gash has been made, start working it gently back and forth against the edge. The bottom line can be made quite accurately in this manner, but the upward curve of the cabochon will be very uneven and will require a great deal of hand work with theh sanding cloth. The curved Outer Surface is made by working the stone against the periphery of the wheel in regular cabochon fashion.

Figure 2 shows a combination of the "V" and the curved Outer Surface. Figure 3 shows a combination of the crescent cut made on the edge of the wheel and the curved Outer Surface, with three cabochon formations on the top surface formed by making two slanting cuts on the top of the crescent with the sharp edge of the wheel and finishing them off as cabochons.


Fig. 1

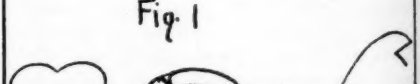


Fig. 2 Fig. 3 Fig. 4

**Some types of cabochon cuts.**

Figure 4 is a combination of all three cuts. Pieces carved in this manner are finished the same as in any cabochon except for the large amount of hand sanding to be done. Use 220 Carborundum cloth for this. The small scraps cut from the corners of the square cloth which has been put on the sanding disk are ideal, They have been dipped in water and if allowed to dry and curl as they please, furnish excellent sanding tools for the hand work. They are much sharper for having been wet.

Polish the work on the wood and felt wheels in the same manner in which the stone was cut on the grinding wheels.

For this type of cutting the regular lapidary Carborundum or Norbide wheels are used, a coarse one for shaping and a finer one for finishing. A great variety of simple shapes can be made on these wheels and the results are bound to enhance any collection to say nothing in the different types of jewelry which can be made. If these shapes are to have elaborate detail added on the surface, a hand tool will be necessary. However, the type of cutting depicted here yields interesting modern pieces with a stream-lined appearance in which there is no intricate detail.

---

## CABOCHON CUTTERS HAVE FOR YEARS OVERLOOKED A VERY INTERESTING CONNECTICUT STONE

**DR. W. B. S. THOMAS**

Spodumene occurs in many places thruout Connecticut and the stone at Strickland Quarry (Portland,) and the quarry at Branchville, when found, appears uninteresting but if the wood-like, altered, exterior is pounded off, a fresh fracture will reveal traces of the lilac color so valued in the pink colored transparent variety that is prized as the gem stone, Kunzite. This unaltered spodumene often has a pearly, grayish white color, and reveals a distinctly lamellar structure.

This material when properly selected will fluoresce a pink color as spodumene but the most interesting orange phosphorescence can be seen for a considerable time after activation by ultraviolet. The material, if cut in a cab and held in the hand, glows in the dark like a red hot coal.

But this is not the most important finding. Cabochons cut from this material can be worked up into handsome cat's eyes! The chatoyant effect occurs across the grain. Some of the cut stones closely resemble the chrysoberyl cat's eye but the stones can easily be told apart by simply weighing the gems in one's hand. The chrysoberyl is heavier, (gravity 3.5 to 3.84) whereas the spodumene is relatively light. (3.13)

The hardness of Chrysoberyl is over 8 while the spodumene is between 6.5 and 7. Do not let this hardness fool you. The material is exceptionally tough and durable, it will cut unwillingly across the grain and bind easily in your saw.

It takes a brilliant polish.

---

**Mid-West Articles Wanted!**

Edifor R. &. M.:

I like *Rocks and Minerals* very much but wish you would print a few articles on collecting sites in the mid-west.

Lt. Richard Cribbs,
Percy Jones General Hospital
Battle Creek, Mich.

May 21st, 1946

Collector: "You have a lot a nice minerals. Why don't you advertise them?"
Dumb Dealer: "Not me. I advertised once in *Rocks and Minerals* and it almost ruined me."

Collector: "How so?"
Dumb Dealer: "Why collectors came here from all around and bought darn near everything I had."

# Club and Society Notes

### New York Mineralogical Club

American Museum of Natural History, New York, N. Y., Wednesday, May 15, 1946

The meeting was called to order at 8 P. M. Mr. T. Orchard Lisle was elected to membership.

There will be a joint field trip of the New York Mineralogical Club and the New Jersey Mineralogical Club to the tunnel excavation at Battery Park on Decoration Day.

Lt. Cosminsky reported on a field trip to Mt. Adma and Mt. Eve., (southern Orange County, N. Y.), where allanite, fluorite, microcline, pyroxene, scapolite edenite spinel, graphite, chondrodite, tremolite, zircon, pyrite and molybdenite were collected.

Mr. Yedlin reported that there are still copper minerals to be had at the Schuyler Mine, Arlington, N. J. principally malachite, calcocite and some covellite.

The speaker of the evening was Ralph J. Holmes, who spoke on the "Occurrence of Nickel-Cobalt Minerals in the Zinc Deposit at Franklin, N. J." He showed that several specimens agreeing with the descrption of chloanthite. $NiAs_2$ were complex mineral assemblages, instead of the single isometric arsenide they are assumd to be. Skutterudite is present but is a very minor constituent encrusting large nodelar masses of rammelsbergite and pararammelsbergite which are in part rimmed with gersdorffite. Veinlets of Safforite (?) transect the other arsensides. No loellingite was observed but in some cases "halos" of arsenopyrite crystals rim the nickel-cobalt minerals.

This raises the number of species of important varieties at Franklin to 159.

The talk was illustrated with colored lantern slides.

Dr. F. H. Pough showed two extremely interesting colored motion pictures of volcanoes, one of Pericutin (Mexico) and the other of the eruption of Mauna Loa (Hawaii) in 1942. Both pictures were excellent and quite spectacular.

Purfield Kent, Secretary

### Northern California Mineral Society

Four meetings and a field trip were held by the Society during June, 1946. On June 7th, a business meeting was held. On June 14th, a micromount meeting. On June 19th, general meeting at the Public Library, San Francisco. On June 28th, a lapidary night.

The field trip was held on June 23rd to the Copperapolis region.

### East Bay Mineral Society

A dinner meeting of the Society was held on June 1, 1946, at the Park Boulevard Club House, Oakland, Calif. This was the last meeting of the term and its main attractions were a mineral and gem display and a sale of material.

### Monterey Bay Mineral Society

A regular meeting of the Society was held on April 11th, 1946, at the Y. M. C. A., Salinas, Calif. The speaker was H. C. Tilliman, of San Jose, who spoke on "Carlsbad Caverns and Petrified Forest", and showed interesting slides of his trip through that section.

A discussion meting was held on May 13th at the Y. M. C. A. with displays arranged by members and a Pot Luck supper.

Dr. K. W. Blaylock, of Salinas, set up an extensive display case of specimens, petrified woods, fossils, and Indian relics.

I. H. Price, of Watson, discussed his display of polished pieces and mineral specimens.

Ann Schulmann, of Santa Cruz, discussed specimens she had brought and asked for identification of two unknowns.

W. P. Kolb, of San Lucas, showed his beautiful cut and polished slabs.

V. E. Schoonover passed around for members to view his emerald crystal and gold nuggets.

Charles Murphy, of Los Gatos and Secretary of the San Jose Lapidary Society, told most interestingly of his trip with the East Bay Mineral Society to the Knoxville mine, Calistoga and surrounding areas and suggested valuable do's and don'ts for future mineral trips.

At each meeting A. W. Flippin, of Salinas, Exhibit Chairman, conducted an exciting raffle of mineral specimens and allied articles such as knapsacks, picks, books, etc. This will be a feature of future meetings.

A field trip to Stone Canyon scheduled by Pal Clark, of Monterey, Excursion Chairman, was enjoyed by 30 members and friends on Sunday, May 19th. A few specimens of Stone Canyon jasper were picked up from the dry river beds and a 6-rattle rattlesnake was killed, so fun and excitement was had by all. Those who continued up Stone Canyon were rewarded by a visit with Leo L. Ferris (mailing address San Miguel) who showed us his garden beautifully flagstoned with oustanding specimens of all kinds of jaspers, and other minerals, his cutting and polishing shop, and mineral collection which consisted of many beautifully cut and polished specimens.

Mr. A. L. Jarvis, of Watsonville, represented the Society at the June Federation Convention in Pasadena.

Jane B. Flippin, Sec'y.

### Central Iowa Mineral Club

The Central Iowa Mineral Club held its regular meeting Friday evening, June 7th, 1946.

Frederick Brown was the speaker, his topic Quartz and Quartz minerals. Mr. Brown illustrated his talk with specimens from his fine collection and club members augmented his collection with their best quartz specimens for a general discussion and examination.

The Club's first field trip was held the following Sunday June 9th, at Le Grand, Iowa where members were privileged to see the outstanding collection of Crinoids belonging to B. H. Beane, our host for the day. After viewing Mr. Beane's collection, the group gathered at the nearby limestone quarry for lunch and then spent the remainder of the afternoon hunting for fossils and calcite crystals. There were 22 members present on this first expedition.

Dorothy L. Hays, Sec.
1330-66th St.
Des Moines, 11 Iowa

### Texas Mineral Society

The June Meeting of the Texas Mineral Society was devoted to the Election of New Officers and a round table discussion of specimens brought by Members. Officers selected by vote for the coming year were: J. D. Churchill, President; Asa Anderson Vice President; Wm. H. LaDew, Secy' Treas. Mrs. Robert Peck was elected to the board of directors to succeed Prof. H. A. Trexler. After the meeting fluorescent specimens were sshown and discussed and Staff Photographer of the Baker Hotel took pictures of Members present.

Wm. H. LaDew
Sec.

### Mineralogical Society of So. California

A regular meeting of the Society was held on June 10, 1946, at the Pasadena Public Library, Pasadena, Calif. The election of officers for the coming term was held and the annual reports of the Treasurer and of the President were read.

### Boston Mineral Club

A regular meeting of the Club was held on June 4, 1946, at the American Academy of Arts and Sciences, Boston, Mass. The speaker was Miss Mary Mrose, whose subject was "The pegmatite deposit at Haddam Neck, Conn.

### Marquette Geologists Association

A regular meeting of the Association was held on June 1, 1946, at the Arademy of Sciences, Chicago, Ill. The election of officers for the new term was held. Dr. John Ball also presented his interesting and instructive "Short lessons in geology."

### Colorado Mineral Society

The second field trip of the Society for the season was held on June 23rd, 1946, to North Table Mountain in Colorado, a locality noted for many minerals such as analcite, chabazite, natrolite, thomsonite, etc.

### Yavapai Gem and Mineral Society

At the May meeting of the Society Dr. Charles A. Anderson, of the U. S. Geological Survey, gave a talk on the two methods by which geodes and nodules are formed.

At the June meeting J. E. Churchill, formerly with the U. S. Navy, described the process of operation of radar.

Ida Smith, Sec.
Prescott, Ariz.

### North Jersey Mineral Society

The 15th meeting of the Society was held on May 9, 1946, at the Paterson Museum, Paterson, N. J., with an attendance of 45. At this meeeting the members discussed jade, gem cleavage, photo magnification, and gem polish.

The 16th meeting was held on June 13th, at the Museum and it featured an exhibit of gems polished by members. William B. Aitkin addressed the Society on his recent trip to Canada in search of minerals. This was the last meeting for the season.

### Minnesota Mineral Club

The following is the schedule of field trips to be held by the Club during the summer of 1946.

June 9th—Little Falls, Minn., and vicinity (an area noted for fine staurolite crystals).
July 14th—Pino City and environs.
Aug. 11th—Wisconsin side of the St. Croix where there are several good localities and a crystal cave.

For further information on the trips, contact Mr. John D. Miller, 3107 Grand Ave., Minneapolis 8, Minn. (tele.Regent 0661).

### Mineralogical Club of Hartford

The following is the schedule of field trips to be held by the Club during the summer of 1946:

June 16th—Barris farm, Lithia, Mass.
July 21st—Baylis quarry, Bedford, N. Y.
Aug. 18th—Talc mine, Chester, Vt.
Sept. 15th—Lime quarry, Canaan, Conn.

Meeting place:—Board of Education Bldg., 249 High St., Hartford, Conn., at 9:30 a. m. sharp. Further information may be obtained from the Outing Committee, Geo. P. Robinson, 16 Simpson St., Hartford (tele. 7-9670); Robt. Brandenberger, 194 Otis St., Harford (tele. 5-3365).

### Cincinnati Mineral Society

Through the efforts of Mr. Frank P. Atkins, Jr., a mineral club had been formed in Cincinnati, Ohio. The first meeting was held at Mr. Atkins' home, the name selected for the Club was " Cincinnati Mineral Society", and it was decided that at the next meeting, which may have been on June 23rd, officers will be elected. All meetings in the future are to be held at the Cincinnati Museum of Natural History. The Club has been affiliated with the Rocks and Minerals Association.

All those interested in joining the new Club should contact Mr. Frank P. Atkins, Jr., 2207 Upland Pl., Cincinnati 6, Ohio.

### Imperial Lapidary Guild

On the 18th and 19th of May, the Imperial Lapidary Guild and the Imperial Gem and Mineral Society of Imperial County, California, held one of the finest gem and mineral exhibits ever held in the state of California. The two clubs, within a close range of one of the richest semi-precious gem and mineral fields in the United States, combined their efforts in making the exhibit interesting to professonal and amateur gemologists and mineralogists alike. Hundreds of people from the southern part California attended the show free of charge, and were greeted by representatives of both clubs. At least twenty-five guests went home with beautiful, polished nodules or cabochons which they had received as door prizes. Many carried specimens of gems or minerals purchased at the grab-bag counter within the hall. The grab-bag proved to be one of the most interesting attractions at the show.

The exhibit was housed in the spacious Veteran's Memorial hall in El Centro. Each of the exhibitors was granted show case or table space in the center of the hall in which club members had installed large, commercial fluorescent lights for the occasion. The show cases were loaned to the clubs by the Imperial County Fair Board. Davenports and chairs were placed around the sides of the room for those who wished to use them.

The general exhibit, including minerals, rough gem material, polished slabs and thunder eggs, cabochons, facted stones, crystals, geodes, nodules, fossils, petrified woods, and gem and mineral oddities. A great variety of fluorescent and phosphorsecent material covering some seventy-five square feet of table space, was exhibited on a darkened stage at one end of the main hall. The best equipment obtainable for long and short wave lighting loaned to the clubs by dealers, was installed on the stage. The fluorescent display, a large portion of which came from Imperial County, was judged by many as the feature attraction of the show.

As a special attraction to the show, because of the oustanding artistry which it displayed, was an exhibit of desert flora which had been collected, pressed and framed by one of the club members. Flower lovers were thrilled at the sight of beautiful, labeled specimens.

Cutting and polishing equipment was exhibited and operated during the exhibit, and a great deal of interest was shown by spectators to that phase of the exhibit. Many grab-bag specimens were cut in the preseence of the owners.

Some time prior to the exhibit, invitations were sent to gem and mineral society members in a large surrounding area, inviting them to attend and exhibit their collections; however, dealers were asked not to bring material for sale, since the show was conducted on a purely non-commercial basis.

The success of the exhibit was due to the oustanding cooperation the club received from the El Centro Chamber of Commerce, the local newspapers, the American Legion and Auxilliary, the Imperial County Fair Board, the guests, and from the individual members of local and surrounding gem and mineral societies.

Club members and guests were so gratified with the exhibit that plans are already under way for another larger exhibit in 1947.

Very truly,
L. G. Beleal
Secretary

### Wisconsin Geological Society

A regular meeting of the Society was held on June 3rd, 1946, at the Milwaukee Public Library, Milwaukee, Wisc. The main item of interest at this meeting was the election of officers for the coming term.

### Los Angeles Mineralogical Society

Mr. Phillip M. Kerridge, a Lt. Commander in the late war, delivered a very interesting talk on synthetic jewels to the Los Angeles Mineralogical Society at its May 15th, 1946, meeting. Before hostilities commenced in Europe this country imported around 76 million synthetic jewels from Europe yearly to be used in scientific instruments, watches, bearings, etc. After we got into the war this country was hard pressed for such materials and to Mr. Kerridge fell the task of discovering methods for their synthesis, especially sapphire, and getting into mass production of same. He gave the four classifications of synthetic stones as onyx, treated or colored, reconstructed and imitation, plastics, etc. Method of identification were magnification, color, polarization, index of refraction, hardness, and specific gravity. Under magnification, occlusions were even in synthetics while carbon spots, flaws, etc, showed up in natural stones.

Agate was used as a base in most treated stones, onyx being produced by soaking agate in sugar or honey for a month or more and then treated with warm sulphuric acid. Red stones were produced by soaking agate in iron nitrate, dried and dipped in acid solution; blue treated with potassium ferrocyanide; apple green in nickel nitrate; and brown in ferro-cyanate.

Synthetic sapphires are produced from aluminum oxide, for blue stones add cobalt and for brown ones chromium oxide. The method of production is very technical and requires a fusion temperature betwen 3670° and 3760° and measured quantities of oxygen and hydrogen. Spinel produced in the same manner as sapphire with the addition of magnesium oxide to the aluminum oxide.

Reconstructed stones are made from natural stones the material being ground to a fine powder and fused. All synthetic stones are made from pure chemicals mixed in mathematical proportions.

Arthur G. Weigel
Pub. Chm.

### Chicago Rocks and Minerals Society

A regular meeting of the Society was held on May 11,1946, at its headquarters in Saugnash Park Field House, Chicago, Ill. Mr. Ben Hur Wilson, of Joliet, Ill., was the speaker who gave a very interesting talk on field trips. There were 20 members in attendance.
Geo. C. Anderson, Pres.

### Newark Mineralogical Society

An annual business meeting and entertainment was held by the Society on June 11, 1946, at the Public Library, Plainfield, N. J. A very special display of gemstones was a feature and so was the auction of a large and beautiful calcite that was donated by John S. Albanese, of Newark, N. J.

### Nebraska Mineralogy and Gem Club

An all day field trip was held on May 26, 1946, to the University of Nebraska, Lincoln, Nebr., where the mineral and geological exhibits were examined, Prof. E. F. Schramm, of the University, was guide for the group.

### Mineralogical Society of the District of Columbia

A regular meeting of the Society was held on June 21, 1946. The speaker was Michael Fleischer, of the U. S. Geological Survey, whose subject was "Manganese and the manganese minerals."

The Society meets at the U. S. National Museum, Washington, D. C.

### Maine Mineralogical and Geological Society

The first field trip of the Society for the season was held on May 26th, 1946, to Noyes Mountain, Greenwood, Me. The locality is a pegmatite deposit noted for many minerals including amblygonite, apatite, lepidolite, tourmaline, etc.

## . . . With Our Dealers . . .

How about a colorful brick-red phosphorescent aragonite for your collection? You can obtain it from Frank Duncan & Daughter, of Terlingua, Texas.

The H. E. Powell Co. of Little Rock, Ark., can supply schroeckingerite and white flourite —both are fluorescent.

Have you rose quartz xls in your collection? The Erskine Collection, of La Jolla, Calif., have them in stock.

Wyoming Minerals, of Laramie, Wyo., have just received a nice lot of amethysts and zircon xls.

Futuria Studio, of Miles City, Mont., have literature on their new Speed-Ex gem drill. Write for it.

Choice Cabinet Specimens from Colorado! is the caption of an ad of E. Mitchell Gunnell, of Denver, Colo.

Choice smithsonite from the Tri-State District can be obtained from Graffham's Commercial Museum, Ottawa, Kans.

A. L. Jarvis, of Watsonville, Calif., can supply diamond bortz and other lapidary material.

The Western Mineral Exchange, of Seattle, Wash., can supply a number of fluorescent minerals and many items for the lapidary shop.

Gilbert W. Withers, of Atlanta, Ga., announces that he is discontinuing all retail sales and will henceforth sell in wholesale amounts only—to dealers.

A new shipment of superb Mojave Desert jasper has been reecived by Arthur and Lucille Banger, of Chicago, Ill.

The Hermosa Gem & Mineral Shop, of Durango, Colo., again suggest to touring rockhounds that they visit southwestern Colorado.

A new advertiser is the Lincoln Hobby Shop, of Santa Monica, Calif., who feature some showy Nevada minerals. Mrs. Richard Buhlis is the manager of the shop.

Another color parade of minerals (No. 6-various) is featured by A. Joseph Alessi, of Lombard, Ill.

The revolutionary new Hillquist Gem Drill and Hole Saw! is the caption of the ad of Lapidary Equipment Co., Inc., of Seattle, Wash.

Keweenaw Agate Shop, of Ahmeek, Mich., presents some attractive rough gem minerals.

Jno. B. Litsey, of Dallas, Texas, has a nice stock of fluorescent bulbs.

For good quality, rough gem material, contact the Colorado Gem Co., of Bayfield, Colo.

Do you need a good faceting head? See the ad of Lloyd M. Demrick, of San Francisco, Calif.

The Rock House, of Colorado Springs, Colo., is a new advertiser. See their offerings.

Ward's, of Rochester, N. Y.., also feature new material such as native tellurium, cordierite, boulangerite, also a very fine mineral collecting bag.

A number of fine mineral specimens are featured by Roberts & Stevens, of Monterey Park, Calif.

C. A. Holliday, of Battle Mountain, Nev., lists a series of interesting Nevada minerals which he can supply.

Nellie Turnidge, of Portland, Ore., a new advertiser, features well cut and polished agates.

A golden opportunity is offered collectors this month, announces Thompson's Studio, of Pomona, Calif.

Amethysts geodes, and other recent acquisitions are being featured by Schortmann's Minerals, of Easthampton, Mass.

H. Sussbach, of New York City, has acquired over 2 tons of used diamond saws and lapidary wheels.

The Wiener Mineral Co., of Tucson, Ariz., has another list of fine specimens also another featuring smoky topaz.

A number of gem and mineral rarities are being offered by Grieger's, of Pasadena, Calif.

Are you a micro mount enthusiast? See the list of nice new micros featured by Hatfield Goudey, of Yerington, Nev.

More fine minerals from an old collection are listed by Hugh A. Ford, of New York City.

Imported cutting material for faceting cabochons may be obtained from Lionel Day, of New York City.

Richard L. Casanova, of Curundu, Canal Zone, is in the market for fossils and fossil collections.

Amazonite, agates, geodes—nice specimens—obtainable from Mrs. B. F. Nonneman, of Salinas, Calif.

Long Beach Mineral & Lapidary Supply Co., of Long Beach, Calif., announce a new G & W Supreme Grinding Arbor.

# TRILOBITE FOSSILS IN ILLINOIS

By GEO. V. MICHAEL
Wood River, Ill.

In the limestone known as the Chester formation which is found along the Mississippi River from the mouth of the Illinois River down to Chester, Ill., trilobites can be found.

To the reader not familiar with this fossil, it is of a three-lobed animal known to have roamed over this part of the country in the earliest part of the Stone Age. There are over 500 species and they range in size from 1/8 of an inch to 2½ feet in length.

Trilobites are common to most quarry workers in this area. Paving rock taken from these quarries are used to pave the banks of the river and the fossils can be found in the rock. When the Alton Dam was under construction (at Alton Ill., on the Mississippi River), beautiful trilobites of all sizes could be seen in the rock in the bed of the Mississippi. Although I am not an authority on fossils, I have seen a number of fossil collections and believe the trilobites bear the finest of detail and that they are the best. Those in my collection have the eyes (which look like spectacles) and the whiskers as clear as the three-celled imprints on the back.

Part of my trilobite collection came from the quarries in Grafton, a little village located at the mouth of the Illinois River, in southwestern Illinois.

## MINERALS NO. 1 PRIORITY

(*Continued from page 426*)

we observe that the earth's supply of strategic and critical minerals is diminishing. There is great need to conserve; a need to explore beyond our horizons and learn to process new materials. We have already entered a new age, the atomic age. We must and will harness this great power. We must study, and above all conserve. For as in the days of the cave man, and in modern times, minerals and metals will continue to play the leading role in the future. Will we have enough? If not, can we make synthetic supplies to meet our future needs? Will minerals have a greater use? These questions we cannot answer; only the future can. But it seems safe to say that yesterday, today, and tomorrow, *Minerals are priority No* 1.